Amendments to the Drawings

Submitted herewith is a replacement sheet for sheet no. 1 in which the reference number 18 for

the "Service Level Agreement (SLA) server" element was changed to reference number 16.

<div align="center">REMARKS/ARGUMENTS</div>

The arguments and amendments submitted herein incorporate the patentability arguments and amendments Applicants discussed with the Examiner during the phone interview on July 24, 2007. Applicants submit that the amendments and arguments presented herein make the substance of the phone interview of record to comply with 37 CFR 1.133. If the Examiner believes that further information on the interview needs to be made of record to comply with the requirements, Applicants request the Examiner to identify such further information.

1.   Amendments Overcome Objections
       Drawing Amendments
       Applicants submit the following amendments and arguments to overcome the objections to the Drawings on pg. 2 of the Office Action:
       With respect to the objection to FIG. 1, Applicants amended FIG. 1 and pg. 9 of the Specification to change reference number 18 to 16 for the service level agreement (SLA) server to overcome the objection on pg. 2 of the Office Action.
       With respect to the objection to FIG. 6, Applicants amended pg. 9 the Specification to change "Retention Interval 130" to "Collection Interval 130" to maintain consistency with the term used in FIG. 6 and other parts of the Specification.
       With respect to the objection to FIG. 9, Applicants amended para. [0025], on pg. 10 of the Specification to add a reference to "block 204" in FIG. 9.
       The Examiner found that item 288 in FIG. 12 is not listed in the Specification. (Office Action, pg. 2) Applicants traverse this objection, because line 19 on pg. 13 of the Specification includes a reference to item 288.
       The Examiner objected to the use of reference number 300 to reference the SLA client in FIG. 13, which is referenced in FIG. 1 as item 28. (Office Action, pg. 2) Applicants traverse this objection because the different FIGs. 1 and 13 provide different numbers for these items in the different figures and descriptions of the figures. The Specification differentiates between the use of these different reference numbers for the SLA Client when discussing the FIGs. 1 and 13.
       The Examiner objected to the use of number 320 to reference the SLA server in FIG. 13, which is referenced in FIG. 1 as item 18. (Office Action, pg. 2) Applicants traverse this

objection because the different FIGs. 1 and 13 provide different numbers for these items in the different figures and descriptions of the figures. The Specification differentiates between the use of these different reference numbers for the SLA Client when discussing the FIGs. 1 and 13.

Specification Amendments

Applicants amended pg. 1, line 14 of the Specification to change "such as or one or more" to "such as one or more" to overcome the objection to this grammatical mistake on pg. 3 of the Office Action.

Applicants amended the "Brief Description of the Drawings" to include the description of the FIGs. 14a, 14b, 14c as disclosed in para. [0035], pg. 15 of the Specification to overcome the objection to the description of the drawings on pg. 3 of the Office Action.

Applicants amended pg. 7, line 5 to change "ser4vice" to "service" to overcome the objection on pg. 3 of the Office Action.

Applicants amended pg. 9, line 8 to change SLA server 18 to SLA server 16 to overcome the objection on pg. 3 of the Office Action.

Applicants amended pg. 9, line 17 to change "SLA database 18" to "SLA database 20" to overcome the objection on pg. 4 of the Office Action.

Applicants amended pg. 14, line 4 to change "admin client 18" to "SLA client 28" to overcome the objection on pg. 4 of the Office Action. The Specification discloses that the storage service provider uses the SLA client 28. See, paras. [0017], [0018], [0021].

Applicants amended pg. 14, line 5 to change "SLA client 18" to "SLA client 28" to overcome the objection on pg. 4 of the Office Action.

2.   Amendments Overcome Claim Objections

Applicants amended the claims to change "connections" to "I/O paths".

Applicants amended claim 17 to change the dependency to claim 1.

Applicants amended the claims to overcome the objections raised by the Examiner, with certain exceptions noted below.

With respect to claim 36, Applicants submit that there is sufficient antecedent basis for the "application service connection

3. The Amended Claims Comply with 35 U.S.C. §101

The Examiner rejected the claims under 35 U.S.C. §101 on the grounds the independent claims do result in tangible results or real world changes. (Office Action, pg. 14)

Amended claims 1, 19, 31, and 47 concern managing a network providing Input/Output (I/O) paths between a plurality of host systems and storage volumes in storage systems, and require: providing an application service connection definition for each of the I/O paths ~~connection~~ from a host to a storage volume; providing at least one service level guarantee definition indicating performance criteria to satisfy service requirements included in at least one service level agreement with at least one customer for network resources; associating each service level guarantee definition with at least one application service connection definition; gathering, by a virtualization controller mapping physical storage resources to virtual volumes in a virtualization layer, Input/Output (I/O) performance data for I/O requests transmitted through the I/O paths; transmitting, by the virtualization controller, the gathered performance data to a service level agreement server; monitoring, by the service level agreement server, whether the performance data for the I/O requests transmitted through the multiple I/O paths satisfy the performance criteria indicated in the service level guarantee definition associated with the application service connection definitions for the I/O path; and transmitting, by the service level agreement server, commands to the virtualization controller to throttle I/O transmission over at least one connection in response to determining that the performance data for at least one connection does not satisfy the performance criteria.

The added requirements that a virtualization controller, which maps physical storage resources to virtual volumes in a virtualization layer, gathers Input/Output (I/O) performance data for I/O requests transmitted through the I/O paths and transmits the gathered performance data to a service level agreement server are disclosed on at least paras. [0013]-[0015], pgs. 4-5, which discusses how the performance gateways 14a, 14b in the virtualization controller gathers and transmit I/O performance data.

The added requirements that the service level agreement server monitors whether the performance data for the I/O requests transmitted through the multiple I/O paths satisfy the performance criteria indicated in the service level guarantee definition associated with the application service connection definitions for the I/O path and transmits commands to the virtualization controller to throttle I/O transmission over at least one connection in response to

determining that the performance data for at least one connection does not satisfy the performance criteria are disclosed on at least paras. [0013]-[0015] and FIGs. 11 and 12, at paras. [0027]-[0031].

Applicants submit that the added operations such as a virtualization controller gathering I/O performance data and transmitting the gathered performance data to a service level agreement server, and the server level agreement server transmitting commands to the virtualization controller to throttle I/O requests, provide real world changes and tangible results.

During the phone interview, the Examiner said that the proposed amendments, which Applicants have substantially made to the claims, would overcome the Section 101 rejection. Accordingly, Applicants request that the Examiner withdraw the Section 101 rejection.

4.   Amended Claims are Patentable Over the Cited Alvarez

The Examiner rejected claims 1, 3, 4, 8-15, 19, 21, 22, 25-38, 31, 33, 34, 38-45, and 47-48 as anticipated by Alvarez (U.S. Pub. No. 2004/0236846). Applicants traverse with respect to the amended claims.

With respect to the pre-amended claims 1, 19, 31, and 47, the Examiner cited paras. [0037], [0043], and [0044] as disclosing the requirements of the pre-amended claims. (Office Action, pgs. 15-16) Applicants traverse with respect to the amended claims.

The cited para. [0037] discusses a centralized quality of service (QoS) decision point system on a computer system. The cited paras. [0043]-[0044] mention that the QoS decision point system ensures that each stream receives a guaranteed level of resources and gathers information from all enforcement points on the performance each stream 70, 75, 80 is currently receiving from the storage subsystem. Storage system performance is continually monitored by the QoS decision point system. The QoS decision point system 10 also knows the quality of service each stream 70, 75, 80 has requested through its service level agreement (SLA). The QoS decision point system 10 compares current performance with the performance targets for each stream 70, 75, 80 specified by the corresponding SLAs. Some of the SLAs may not be receiving the quality of service specified in their SLAs and others may receive a higher quality of service than they are entitled through their SLA. If needed, the QoS decision point system 10 generates throttling commands so that some or all of the enforcement points will start delaying some or all of the I/O streams 70, 75, 80 that flow through them while allowing I/Os from other streams 70,

75, 80 to flow unfettered. This throttling action may bring the quality of service provided to each stream 70, 75, 80 in agreement with their respective SLA.

Although the cited Alvarez discusses how a QoS decision point may monitor performance and throttle enforcement points, nowhere does the cited Alvarez disclose the added claim requirements that a virtualization controller, which maps physical storage resources to virtual volumes, gathers I/O performance data and transmits the gathered performance data to a service level agreement server. Further, the cited Alvarez does not disclose that a service level agreement server transmits commands to the virtualization controller to throttle I/O transmission over the I/O paths if the performance data for the requests does not satisfy the performance criteria.

During the phone interview, the Examiner said that the above amendments would distinguish over the cited art. Accordingly, Applicants request the withdrawal of the rejection of independent claims 1, 19, 31, and 47 in view of Alvarez.

Claims 3, 4, 8-15, 21, 22, 25-38, 33, 34, 38-45, and 48 are patentable over the cited Alvarez because they depend from claims 1, 19, 31, and 47, which are patentable over the cited art for the reasons discussed above, and the additional requirements of these claims in combination with the base claims provide further grounds of patentability over the cited art.

5.   Amended Claims are Patentable Over the Cited Koclanes

The Examiner rejected claims 1, 5, 6, 8, 16, 19, 23, 25, 29, 31, 35, 38, 47, and 49 as anticipated by Koclanes (U.S. Pub. No. 2004/0243699) Applicants traverse with respect to the amended claims.

With respect to claims 1, 19, 31, and 47, the Examiner cited lines 8-12 of para. [0096], lines 2-4 of para. [0098], lines 4-5 of para. [0017], lines 1-3 of para. [0033], lines 1-5 of para. [0037], and lines 1-4 of para. [0048] of Koclanes as disclosing the pre-amended version of the claims. (Office Action, pgs. 20-21). Applicants traverse with respect to the amended claims.

The cited para. [0096] mentions that the software executes on any conventional or custom platform and the cited para. [0098] mentions that the monitoring and control server includes a discovery module, and monitoring module. The cited para. [0017] mentions that a set of policy rules is established in connection with these service level objections. The cited para. [0033] mentions that application servers are connected to storage resources through a SAN. The cited

para. [0037] mentions that a policy-based management of storage resources incorporates automatically meeting a set of service level objectives (SLOs) driven by policy rules that may correspond to a service level agreement (SLA). The cited para. [0048] mentions that to observe the current state of storage resources, a monitoring system continuously collects data on the status of all storage resources and applications that consume storage.

Although the cited Koclanes discusses how a monitoring system collects data on storage resources and whether storage resources meet a set of service level objects, nowhere does the cited Koclanes disclose the added claim requirements that a virtualization controller, which maps physical storage resources to virtual volumes, gathers I/O performance data and transmits the gathered performance data to a service level agreement server. Further, the cited Koclanes does not disclose that a service level agreement server transmits commands to the virtualization controller to throttle I/O transmission over the I/O paths if the performance data for the requests does not satisfy the performance criteria.

During the phone interview, the Examiner said that the above amendments would distinguish over the cited art. Accordingly, Applicants request the withdrawal of the rejection of independent claims 1, 19, 31, and 47 in view of Koclanes.

Claims 5, 6, 8, 16, 23, 25, 29, 35, 38, and 49 are patentable over the cited Koclanes because they depend from claims 1, 19, 31, and 47, which are patentable over the cited art for the reasons discussed above and the additional requirements of these claims in combination with the base claims provide further grounds of patentability over the cited art.

6.　　Claims 2, 7, 18, 20, 24, 30, 32, 36, 37, and 46 are Patentable Over the Cited Koclanes and Bradley

The Examiner rejected claims 2, 7, 18, 20, 24, 30, 32, 36, 37, and 46 as obvious (35 U.S.C. §103) over Koclanes in view of Bradley (U.S. Patent No. 7,082,463)

Applicants submit that claims 2, 7, 18, 20, 24, 30, 32, 36, 37, and 46 are patentable over the cited Koclanes and Bradley because they depend from claims 1, 19, 31, and 47, which are patentable over the cited art for the reasons discussed above and the additional requirements of these claims in combination with the base claims provide further grounds of patentability over the cited art.

7.   Claims 17 are Patentable Over the Cited Koclanes and Ng

        The Examiner rejected claims 2, 7, 18, 20, 24, 30, 32, 36, 37, and 46 as obvious (35

U.S.C. §103) over Koclanes in view of Ng (U.S. Patent No. 20040049564)

        Applicants submit that claim 17 is patentable over the cited Koclanes and Bradley

because it depends from claim 1, which is patentable over the cited art for the reasons discussed

above and the additional requirements of claim 17 in combination with the base claims provide

further grounds of patentability over the cited art.

                                    Conclusion

        For all the above reasons, Applicant submits that the pending claims 1-15, 17-28, and 30-

49 are patentable. Should any additional fees be required beyond those paid, please charge

Deposit Account No. 09-0466.

        The attorney of record invites the Examiner to contact him at (310) 553-7977 if the

Examiner believes such contact would advance the prosecution of the case.

Dated: August 10, 2007   By:____/David Victor/_____

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